UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
SE-5J

ACTION MEMORANDUM

DATE:

SUBJECT: ACTION MEMORANDUM - Request for an Emergency Removal Action at the Ross Mercury Spill, Chicago, Cook County, IL (Site ID# B555)

FROM: Peter Guria, On-Scene Coordinator
Emergency Response Branch - Oil Planning and Response Section

TO: Rick Karl, Chief
Emergency and Enforcement Response Branch

THRU: Beverly Kush, Chief
Oil Planning and Response Section

I. PURPOSE

The purpose of this Memorandum is to obtain your approval to expend up to $ 29,835 to mitigate threats to human health and the environment posed by the presence of uncontrolled hazardous substances (mercury) released at the Ross Mercury Spill Site (RMS), [redacted] Peoria, Chicago, Cook County, Illinois. The proposed action is being taken pursuant to Section 104 (a)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, by locating, recovering, and decontaminating metallic mercury released in a residential home and yard. Off-site disposal of the mercury and mercury-contaminated media (soil, concrete, clothing, furniture, etc.) will also be completed. Verbal Authority to expend up to $25,000 was granted on March 16, 1998, by the Chief of the Emergency Response Branch (ERB), to initiate site stabilization and security measures. It is estimated that the removal action will require 5 on-site working days to complete. The removal action is an emergency due to the presence of metallic mercury and its vapor throughout the second floor of the residence and metallic mercury released to the front yard.

The site is not on the National Priorities List (NPL).

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID# ILR 000 048 744

A. Physical Location

The RMS site is an private residence located at [redacted] Peoria Street, Chicago, Cook County, Illinois. The site is located in a residential area on the south side of Chicago with Peoria Street defining the site's eastern boundary. The residence is bordered immediately to the north, east, and south by residential homes.

LanView data indicates that the population within a 1 mile radius of the site is 46,300, of which, 98.4 % are black with a median household income of $15,874.

B. Site Description and Background

The RMS site is a residential rental property situated in the south side of Chicago. The closest major intersection is 59th Street and Halsted. The home is occupied by a family of seven.

On March 16, 1998, The U.S. EPA ERB was contacted by the Illinois Department of Public Health (IDPH) and requested to investigate a release of metallic mercury in a bedroom of the residence from a broken blood pressure manometer. The IDPH was contacted by a physician at the Cook County Hospital who had examined several children and adults who reported being exposed to mercury. The physician reported that the blood pressure manometer used by a family member had broken and spilled mercury onto several children and an adult. The adult contacted the local poison control center and was instructed to vacuum up the mercury and have all family members report to the hospital for an examination. The physician stated that none of the children or adults exhibited signs or symptoms of mercury poisoning, and all were released from the hospital. The physician then contacted the IDPH to have them investigate the home.

At 1300 hours, an emergency site assessment was conducted by the OSCs Pete Guria and Betty Lavis, along with members of the U.S. EPA Superfund Technical Assessment and Response Team (START) contractor, Ecology and Environment. Upon arrival at the residence, the OSCs met with the tenant who informed them that a blood pressure manometer had broken in a bedroom on the second floor. The tenant was unsuccessful in recovering the mercury with a vacuum cleaner, but managed sweep up some of the material and threw it out the second floor window into the front yard below. The OSCs and START donned Level C protective gear with mercury vapor cartridges and conducted air monitoring of the interior of the home with a Jerome Model 431-X mercury vapor analyzer (MVA). Mercury vapor levels ranged between 0.059 mg/m^3 and 0.064 mg/m^3 in the second floor hallway; between 0.022 mg/m^3 and 0.055 mg/m^3 in the bedroom where the manometer had broken; between 0.086 mg/m^3 and 0.082 mg/m^3 in a northwest bedroom; and, between 0.063 mg/m^3 and 0.072 mg/m^3 in the bathroom.

First floor mercury vapor levels were found to range from 0.086 mg/m^3 to 0.099 mg/m^3 in the living room and 0.086 mg/m^3 0.090 mg/m^3 in the kitchen. Air surveys of the vacuum cleaner and a small puddle of metallic mercury in the hallway revealed mercury vapor at 0.115 mg/m^3, and 0.127 mg/m^3 respectively (Attachment 2). At the conclusion of the assessment, the OSCs requested that the tenants leave the home immediately and posted no entry signs to prevent persons from entering the property. The tenants were able to relocate with relatives nearby until a cleanup could be performed.

C. Current Site Conditions

Mercury vapor levels throughout the first and second floor of the home range from 0.022 mg/m^3 to 0.099 mg/m^3 in the ambient air and breathing zone. Visible metallic mercury has been observed on the floor of one bedroom and hallway inside the residence, and a small puddle has been found outside in the front yard. Additionally, small beads of mercury have also been observed scattered throughout clothing and furniture on the floors of the bedrooms. Mercury vapor levels have been documented from a vacuum cleaner between 0.089 mg/m^3 and 0.115 mg/m^3, and from a small puddle of metallic mercury at 0.127 mg/m^3 (See Attachment 2). The National Institute for Occupational Safety and Health (NIOSH) permissive exposure limit (PEL) is 0.05 mg/m^3. The U.S. EPA Reference Dose concentration for mercury vapor is 0.0003 mg/m^3 (from the U.S. EPA Health Affects Summary Assessment Tables: Anniversary Update FY '93).

Mercury in its organic form is a listed waste under the RCRA of 1976, as amended, and exhibits the characteristic of toxicity under RCRA and 40 CFR § 261.24.

D. Other actions to date.

The proposed cleanup activities in this Action Memorandum have been discussed with Tom Boxman of the Illinois Department of Public Health, Bollingbrook, IL, office.

III. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the RMS site present a release, and potential threat of release, of a CERCLA hazardous substance, threatening to public health, or welfare, or the environment based upon factors set forth in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR § 300.415 (b)(2). These factors include:

a) actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants;

This factor is present at the facility due to the presence of metallic mercury and its vapor above NIOSH permissible exposure levels (0.05 mg/m^3) and the U.S. EPA Reference Dose concentration of 0.003 mg/m^3. Mercury poses a toxic threat through inhalation, ingestion and

direct contact which can result in severe nausea, vomiting, abdominal pain, bloody diarrhea, kidney and liver damage, and death. Metallic and salt forms of mercury are highly toxic when inhaled, and attacks the central nervous system by destroying neurons.

Mercury is a listed hazardous waste under RCRA, and 40 CFR § 261.33, and exhibits the characteristic of toxicity under 40 CFR § 261.24, and is a hazardous substance under section 101(14) of CERCLA.

b) the unavailability of other appropriate Federal or State response mechanisms to respond to the release;

This factor supports the actions proposed by this Memorandum at the facility because the IDPH and Illinois Environmental Protection Agency (IEPA) do not have the necessary resources to respond to the emergency at this time.

IV. ENDANGERMENT DETERMINATION

The current site conditions, the presence of metallic mercury and its vapor pose serious threats to human health and the environment through direct contact, ingestion, and inhalation. Mercury is a listed waste under 40 CFR § 261.33, and exhibits the characteristic of toxicity under 40 CFR § 261.24, and is a hazardous substance under section 101(14) of CERCLA.

The actual or threatened releases of this hazardous substances, if not addressed by implementing the response action proposed in this Action Memorandum, may present a threat of exposure to mercury and mercury vapor and a potential threat of release to public health or welfare or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

The purpose of this removal action is to mitigate the threats posed to public health or welfare or the environment by the presence of metallic mercury and mercury vapor. Removal activities at the site are to include: the recovery of all metallic mercury from inside and outside the home; the identification and removal of contaminated media (soil, clothing, furniture, etc.); and, the off-site disposal of all characterized wastes identified and generated during removal activities.

Specifically, the following activities are proposed:

1) Develop and implement a site specific work plan including a proposed time line of activities;

2) Develop and implement a site specific health and safety plan;

3) Provide site security measures which may include, but not limited to, security guard service; repair, replacement, or installation of chain-link fencing; and, window board-up services;

4) Develop and implement an air monitoring and sampling and analysis program to identify and confirm the extent of mercury contamination within the interior and exterior of the residence;

5) Remove and properly dispose of mercury and mercury impacted soil, carpeting and other porous materials from the interior and exterior of the residence as determined to require cleanup from sampling and analysis activities as described above;

6) Decontaminate affected building floors and walls, and conduct air sampling to verify that the residence has been decontaminated to acceptable levels; and

7) Transport and dispose of all characterized or identified hazardous substances, pollutants, wastes, or contaminants at a RCRA-approved disposal facility in accordance with the U.S. EPA Off-Site Rule, 40 CFR § 300.440.

Removal activities will require approximately 5 on-site working days to complete. The threat posed by the presence of metallic mercury and mercury vapor meet the criteria listed in §300.415(b)(2) of the NCP and are consistent with any long-term remedial action which may be required.

The OSC has begun planning for the provision of post-removal site control, consistent with the provisions of § 300.415(k) of the NCP. The nature of the removal, elimination of all threats, is, however, expected to eliminate or minimize the need for post-removal site control.

The detailed cleanup contractor costs are presented in Attachment 1 and estimated project costs are summarized below:

EXTRAMURAL COSTS

Cleanup Contractor	$ 20,000
Contingency (10%)	2,000
Subtotal	22,000
Total TAT, including multiplier costs	3,000
Extramural Subtotal	$ 25,000

Extramural Contingency (10%)	2,500
TOTAL, EXTRAMURAL COSTS:	$ 27,500
INTRAMURAL COSTS:	
U.S. EPA Direct Costs $30/hr x (25 Regional + 2 HQ hrs)	$ 810
U.S. EPA Indirect Costs $61/hr x (31 Regional hrs)	1,525
TOTAL, INTRAMURAL COSTS	$ 2,335
TOTAL REMOVAL PROJECT CEILING ESTIMATE	$ 29,835

The response actions described in this Memorandum directly address actual or threatened releases of hazardous substances, pollutants, or contaminants at the RMS site which may pose direct contact, ingestion, and inhalation threats to public health and safety and to the environment. These response actions do not impose a burden on affected property disproportionate to the extent to which that property contributes to the conditions being addressed.

Applicable or Relevant and Appropriate Requirements (ARARS)

All applicable, relevant, and appropriate requirements (ARARS) will be complied with to the extent practicable. Federal ARARS for this site include RCRA. As the materials being dealt with are likely to be RCRA characteristic wastes, they will be handled accordingly. To the degree materials are treated on-site, treatment will meet RCRA land disposal restrictions found in 40 CFR § 268. To the degree materials are sent off site, wastes will be sent to a RCRA permitted facility and RCRA manifesting requirements will be complied with for all waste streams.

The materials will be sent to an acceptable RCRA treatment, storage, and/or disposal facility pursuant to the U.S. EPA Off-Site Rule.

VI. CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED

Given the site conditions, the nature of the hazardous substances documented on site, and the potential exposure pathways to nearby populations described in sections II and III above, actual or threatened releases of hazardous substances from the RMS site, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

VII. ENFORCEMENT

For administrative purposes, information concerning confidential enforcement strategy for this site is contained in the Confidential Enforcement Addendum.

VIII. RECOMMENDATION

This decision document represents the selected removal action for the Ross Mercury Spill site, located in Chicago, Cook County, Illinois and developed in accordance with CERCLA, as amended by SARA, and not inconsistent with the NCP. This decision is based upon the Administrative Record for the site. Attachment 2 identifies the items that comprise the Administrative Record upon which the selection of the removal is based.

Because the conditions at the site meet the NCP § 300.415(b)(2) criteria for an emergency removal action, your approval of this request is recommended. The estimated total project costs are $ 29,835 of which up to $ 25,000 may be used for cleanup contractor costs. You may indicate your decision by signing below:

APPROVE: Donald Bruce for Richard DATE 3-27-98
Branch Chief

DISAPPROVE: _____ DATE_____
Branch Chief

Enforcement Addendum
Attachments
1. Detailed Cleanup Contractor Cost
2. Summary of Jerome Air Sampling
3. Administrative Record Index

cc: K. Mould, U.S. EPA, 5202-G
Illinois Environmental Protection Agency
D. Henne, U.S. Department of the Interior

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HAS BEEN REDACTED

NOT RELEVANT TO THE SELECTION OF THE REMOVAL ACTION

ENFORCEMENT ADDENDUM
ROSS MERCURY SPILL SITE
MARCH 1998
1 PAGE

HAS BEEN REDACTED

NOT RELEVANT TO THE SELECTION OF THE REMOVAL ACTION

ATTACHMENT 1

DETAILED CLEANUP CONTRACTOR COST
ROSS MERCURY SPILL SITE
CHICAGO, ILLINOIS
MARCH 1998

ERCS Personnel	$ 6,000
ERCS Equipment	2,000
Sampling and Analysis	2,000
Transportation and Disposal	10,000
TOTAL	$ 20,000

ATTACHMENT 2

SUMMARY OF JEROME AIR SAMPLING
ROSS MERCURY SPILL
CHICAGO, ILLINOIS
MARCH 16, 1998

All results are mg/m^3

Sample Location	Sample 1	Sample 2	Sample 3	Ambient	Ambient	Ambient
Hallway	0.127	0.062	0.062	0.063	0.064	0.059
Northeast Bedroom	0.042	0.027	0.022	0.055	0.051	0.048
Vacuum Cleaner	0.115	0.089	0.072	NA	NA	NA
Bathroom	NA	NA	NA	0.064	0.072	0.063
Northwest Bedroom	NA	NA	NA	0.082	0.066	0.069
Living Room	NA	NA	NA	0.096	0.099	0.086
Kitchen	NA	NA	NA	0.088	0.090	0.086
Garbage Can	NA	NA	NA	0.000	0.003	0.007

NA - No sample taken

ATTACHMENT 3

ADMINISTRATIVE RECORD INDEX
FOR
ROSS MERCURY SPILL SITE
CHICAGO, ILLINOIS
MARCH 1998

DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
00/00/98	Guria, P., U.S. EPA	Karl, R., U.S. EPA	Action Memorandum: Request for an Emergency Removal Action at the Ross Mercury Spill Site, Chicago, IL (pending)	
00/00/98	Ecology & Environment	Guria, P., Lavis, B.	Site Assessment Report Ross Mercury Spill Chicago, IL (Pending)	